

#7
PAT

223-01

RECEIVED
FEB 13 2001
TECH CENTER 16012300
1641

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/676,249A

DATE: 02/09/2001

TIME: 12:19:22

Input Set : A:\PC10555A-SEQ-LIST.TXT

Output Set: N:\CRF3\02092001\I676249A.raw

4 <110> APPLICANT: King, Kendall W
 5 Madura, Rebecca A
 6 Rosey, Everett L
 8 <120> TITLE OF INVENTION: NUCLEIC ACIDS AND PROTEINS OF THE MYCOPLASMA PNEUMONIAE
 9 mhp3 GENE AND USES THEREOF
 11 <130> FILE REFERENCE: PC10555
 C--> 13 <140> CURRENT APPLICATION NUMBER: US/09/676,249A
 C--> 14 <141> CURRENT FILING DATE: 2000-09-29
 15 <150> PRIOR APPLICATION NUMBER: US 60/156,602
 16 <151> PRIOR FILING DATE: 1999-09-29
 18 <160> NUMBER OF SEQ ID NOS: 41
 20 <170> SOFTWARE: PatentIn Ver. 2.1
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 1692
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Mycoplasma hyopneumoniae
 27 <400> SEQUENCE: 1
 28 gtttttgaat ataatagaaa atgtaaaaata aaaattaatt tattaaaaaa taattgaaag 60
 29 tcatcgtaat taaaacaatt aattaggaga acaactatga aaaaaaagat aaaatgaaat 120
 30 aaattttcttg gcttaggctt agtttttccg ctttcagcaa tcgcgacaat ctctgccgga 180
 31 tgttgggata aagaaacaac taaagaagaa aaatcagccg ataatacaaa taagcaaatc 240
 32 actgatgtct caaaaatttc aggactagtt aatgaacgaa aatccgaaat tatggccgca 300
 33 aaagctgatg caaacaaaca ttttgggcta aatatggcaa ttgtaaccgc tggtggaacg 360
 34 gtaaatgata attcatttaa ccaatcaagt tgagaggcaa ttcaacaact tggcgcctct 420
 35 actggaggtg agattacttc agtagatagt tcaactgctg aacttgaagg aaaatatagc 480
 36 tcacttgcta ataccaacaa aaatgtttga gtactttctg gttttcaaca cggtgatgcg 540
 37 ttcacaagat gattaaaaat ccctgaaaaa aagcaattat ttactgaaaa aaatattatc 600
 38 atactcggaa ttgactgaac tgatactgaa aatgtaattc caacaggctc atatattaat 660
 39 ttaacctata aaactgaaga agccggatga cttgcaggat atgcgaatgc ttcccttttg 720
 40 gcaaaaaaat tcccaagtga tccaaactaa agatcagcaa ttgttatcgg tggtgggatt 780
 41 tcgccagctg taactgattt tatcgtggtt tatctagccg gaattaaagc ttgaaatcta 840
 42 aaaaattctg ataaaaaaac aaagataaca actgataaaa tcgagataaa tcttgggttt 900
 43 gatgttcaag atacttcaac aaaagaaaaga cttgaacaaa ttgcttcaaa agataaacct 960
 44 tcaacactat tagctgtcgc tggaccactt actgaaattt tctcggatat aatcgcaaac 1020
 45 caaaatgatc gttatctcat tgggtgtgac accgaccaat cacttgttta taaaaaaact 1080
 46 aaaaataaat ttttcaacct aattttgaaa aatttaggtt actccgtttt cagcgttctt 1140
 47 agtgatttat atacaaaaaa atcaaaatca agaaatttag ccggctttga atttggtaaa 1200
 48 aaaagtgcac ccgttttatct tggaaattaa gacagggttg tcgatattgc tgatacttct 1260
 49 ttagaaggca atgataaaaa actcgcgaact gaagccattt ctgaagctaa aaaagaattt 1320
 50 gaagaaaaaa ctaagacaat tcctgccgaa gaagttcgta aaactttaga aattccggaa 1380
 51 atgcctgata aacaacctga taagcaacag gaaagcttag acaaaactaat taccgatatt 1440
 52 aataaaaaat aagtaagaaa aaalaacaat tttttaacat tatatctttt ttttagagatt 1500
 53 aattttcttc taatttagtt taatttaata taaaattata ttaattaaa aaaaataaaa 1560
 54 atccggacta tttttgttcc ggatttttta tttttgtgtt actatttaat ataatgataa 1620
 55 atcaggatta tgcaattgaa tttattcaag tctcgaaaaa atttggcagt ttttatgcca 1680
 56 attacaaaat ag 1692
 59 <210> SEQ ID NO: 2

P.S.

RAW SEQUENCE LISTING

DATE: 02/09/2001

PATENT APPLICATION: US/09/676,249A

TIME: 12:19:22

Input Set : A:\PC10555A-SEQ-LIST.TXT

Output Set: N:\CRF3\02092001\I676249A.raw

```

60 <211> LENGTH: 451
61 <212> TYPE: PRT
62 <213> ORGANISM: Mycoplasma hyopneumoniae
64 <400> SEQUENCE: 2
65 Met Lys Lys Lys Ile Lys Trp Asn Lys Phe Leu Gly Leu Gly Leu Val
66 1 5 10 15
68 Phe Pro Leu Ser Ala Ile Ala Thr Ile Ser Ala Gly Cys Trp Asp Lys
69 20 25 30
71 Glu Thr Thr Lys Glu Glu Lys Ser Ala Asp Asn Gln Asn Lys Gln Ile
72 35 40 45
74 Thr Asp Val Ser Lys Ile Ser Gly Leu Val Asn Glu Arg Lys Ser Glu
75 50 55 60
77 Ile Met Ala Ala Lys Ala Asp Ala Asn Lys His Phe Gly Leu Asn Met
78 65 70 75 80
80 Ala Ile Val Thr Ala Gly Gly Thr Val Asn Asp Asn Ser Phe Asn Gln
81 85 90 95
83 Ser Ser Trp Glu Ala Ile Gln Gln Leu Gly Ala Leu Thr Gly Gly Glu
84 100 105 110
86 Ile Thr Ser Val Asp Ser Ser Thr Ala Glu Leu Glu Gly Lys Tyr Ser
87 115 120 125
89 Ser Leu Ala Asn Thr Asn Lys Asn Val Trp Val Leu Ser Gly Phe Gln
90 130 135 140
92 His Gly Asp Ala Phe Thr Arg Trp Leu Lys Ile Pro Glu Asn Lys Gln
93 145 150 155 160
95 Leu Phe Thr Glu Lys Asn Ile Ile Ile Leu Gly Ile Asp Trp Thr Asp
96 165 170 175
98 Thr Glu Asn Val Ile Pro Thr Gly Arg Tyr Ile Asn Leu Thr Tyr Lys
99 180 185 190
101 Thr Glu Glu Ala Gly Trp Leu Ala Gly Tyr Ala Asn Ala Ser Phe Leu
102 195 200 205
104 Ala Lys Lys Phe Pro Ser Asp Pro Thr Lys Arg Ser Ala Ile Val Ile
105 210 215 220
107 Gly Gly Gly Ile Ser Pro Ala Val Thr Asp Phe Ile Ala Gly Tyr Leu
108 225 230 235 240
110 Ala Gly Ile Lys Ala Trp Asn Leu Lys Asn Ser Asp Lys Lys Thr Lys
111 245 250 255
113 Ile Thr Thr Asp Lys Ile Glu Ile Asn Leu Gly Phe Asp Val Gln Asp
114 260 265 270
116 Thr Ser Thr Lys Glu Arg Leu Glu Gln Ile Ala Ser Lys Asp Lys Pro
117 275 280 285
119 Ser Thr Leu Leu Ala Val Ala Gly Pro Leu Thr Glu Ile Phe Ser Asp
120 290 295 300
122 Ile Ile Ala Asn Gln Asn Asp Arg Tyr Leu Ile Gly Val Asp Thr Asp
123 305 310 315 320
125 Gln Ser Leu Val Tyr Thr Lys Thr Lys Asn Lys Phe Phe Thr Ser Ile
126 325 330 335
128 Leu Lys Asn Leu Gly Tyr Ser Val Phe Ser Val Leu Ser Asp Leu Tyr
129 340 345 350
131 Thr Lys Lys Ser Asn Ser Arg Asn Leu Ala Gly Phe Glu Phe Gly Lys

```

RAW SEQUENCE LISTING

DATE: 02/09/2001

PATENT APPLICATION: US/09/676,249A

TIME: 12:19:22

Input Set : A:\PC10555A-SEQ-LIST.TXT

Output Set: N:\CRF3\02092001\I676249A.raw

```

132          355          360          365
134 Lys Ser Ala Thr Val Tyr Leu Gly Ile Lys Asp Arg Phe Val Asp Ile
135          370          375          380
137 Ala Asp Thr Ser Leu Glu Gly Asn Asp Lys Lys Leu Ala Thr Glu Ala
138 385          390          395          400
140 Ile Ser Glu Ala Lys Lys Glu Phe Glu Glu Lys Thr Lys Thr Ile Pro
141          405          410          415
143 Ala Glu Glu Val Arg Lys Thr Leu Glu Ile Pro Glu Met Pro Asp Lys
144          420          425          430
146 Gln Pro Asp Lys Gln Gln Glu Ser Leu Asp Lys Leu Ile Thr Asp Ile
147          435          440          445
149 Asn Lys Asn
150          450
153 <210> SEQ ID NO: 3
154 <211> LENGTH: 1269
155 <212> TYPE: DNA
156 <213> ORGANISM: Artificial Sequence
158 <220> FEATURE:
159 <223> OTHER INFORMATION: Description of Artificial Sequence: mhp3
160 manipulated for in vitro expression
162 <400> SEQUENCE: 3
163 atgtgggata aagaaacaac taaagaagaa aaatcagccg ataatacaaa taagcaaatc 60
164 actgatgtct caaaaatttc aggactagtt aatgaacgaa aatccgaaat tatggccgca 120
165 aaagctgatg caaacaaaca ttttgggcta aatatgycac ttgtaaccgc tggggaacy 180
166 gtaaatgata attcatttaa ccaatcargt tgggaggcaa ttcaacaact tggcgctctt 240
167 actggagggtg agattacttc agtagatagt tcaactgctg aacttgaagg aaaatatagc 300
168 tcaacttgcta ataccaacaa aaatgtttgg gtactttctg gttttcaaca cggtgatgcg 360
169 ttcacaagat ggttaaaaat ccctgaaaat aagcaattat ttactgaaaa aaatattatc 420
170 atactcggaa ttgactggac tgatactgaa aatgtaattc caacaggctc atataattaat 480
171 ttaacctata aaactgaaga agccggatgg cttgcaggat atgcgaatgc ttcccttttg 540
172 gcaaaaaaat tcccaagtga tccaaactaa agatcagcaa ttgttatcgg tgggtgggatt 600
173 tcgccagctg tauctgatct tctcgtcgtt tatctagccg gaattaaagc ttggaatcta 660
174 aaaaattctg ataaaaaac aaagataaca actgataaaa tcgagataaa tcttgggttt 720
175 gatgttcaag atacttcaac aaaagaaaga cttgaacaaa ttgcttcaaa agataaacct 780
176 tcaacactat tagctgtcgc tggaccactt actgaaattt tctcggatat aatcgcaaac 840
177 caaaatgata gttatctcat tgggtttgac accgaccaat cacttgttta tacaaaaact 900
178 aaaaataaat ttttcaacct aattttgaaa aatttaggtt actcgtttt cagcgttctt 960
179 agtgatttat atacaaaaaa atcaaatcca agaaatttag ccggtttga atttggtaaa 1020
180 aaaagtgcac ccgtttatct tgggaattaaa gacagggttg tcgatattgc tgatacttct 1080
181 ttagaaggca atgataaaaa actcgcaact gaagccattt ctgaagctaa aaaagaattt 1140
182 gaagaaaaaa ctaagacaat tcctgccgaa gaagttcgta aaactttaga aattccggaa 1200
183 atgcctgata aacaacctga taagcaacag gaaagcttag acaaaactaa taccgatatt 1260
184 aataatcta
187 <210> SEQ ID NO: 4
188 <211> LENGTH: 423
189 <212> TYPE: PRT
190 <213> ORGANISM: Artificial Sequence
192 <220> FEATURE:
193 <223> OTHER INFORMATION: Description of Artificial Sequence: mhp3

```

RAW SEQUENCE LISTING

DATE: 02/09/2001

PATENT APPLICATION: US/09/676,249A

TIME: 12:19:22

Input Set : A:\PC10555A-SEQ-LIST.TXT

Output Set: N:\CRF3\02092001\I676249A.raw

194 manipulated for in vitro expression

196 <400> SEQUENCE: 4

```

197 Met Trp Asp Lys Glu Thr Thr Lys Glu Glu Lys Ser Ala Asp Asn Gln
198   1           5           10           15
200 Asn Lys Gln Ile Thr Asp Val Ser Lys Ile Ser Gly Leu Val Asn Glu
201           20           25           30
203 Arg Lys Ser Glu Ile Met Ala Ala Lys Ala Asp Ala Asn Lys His Phe
204           35           40           45
206 Gly Leu Asn Met Ala Ile Val Thr Ala Gly Gly Thr Val Asn Asp Asn
207           50           55           60
209 Ser Phe Asn Gln Ser Gly Trp Glu Ala Ile Gln Gln Leu Gly Ala Leu
210   65           70           75           80
212 Thr Gly Gly Glu Ile Thr Ser Val Asp Ser Ser Thr Ala Glu Leu Glu
213           85           90           95
215 Gly Lys Tyr Ser Ser Leu Ala Asn Thr Asn Lys Asn Val Trp Val Leu
216           100          105          110
218 Ser Gly Phe Gln His Gly Asp Ala Phe Thr Arg Trp Leu Lys Ile Pro
219           115          120          125
221 Glu Asn Lys Gln Leu Phe Thr Glu Lys Asn Ile Ile Ile Leu Gly Ile
222           130          135          140
224 Asp Trp Thr Asp Thr Glu Asn Val Ile Pro Thr Gly Arg Tyr Ile Asn
225   145          150          155          160
227 Leu Thr Tyr Lys Thr Glu Ala Gly Trp Leu Ala Gly Tyr Ala Asn
228           165          170          175
230 Ala Ser Phe Leu Ala Lys Lys Phe Pro Ser Asp Pro Thr Lys Arg Ser
231           180          185          190
233 Ala Ile Val Ile Gly Gly Gly Ile Ser Pro Ala Val Thr Asp Phe Ile
234           195          200          205
236 Ala Gly Tyr Leu Ala Gly Ile Lys Ala Trp Asn Leu Lys Asn Ser Asp
237           210          215          220
239 Lys Lys Thr Lys Ile Thr Thr Asp Lys Ile Glu Ile Asn Leu Gly Phe
240   225          230          235          240
242 Asp Val Gln Asp Thr Ser Thr Lys Glu Arg Leu Glu Gln Ile Ala Ser
243           245          250          255
245 Lys Asp Lys Pro Ser Thr Leu Leu Ala Val Ala Gly Pro Leu Thr Glu
246           260          265          270
248 Ile Phe Ser Asp Ile Ile Ala Asn Gln Asn Asp Arg Tyr Leu Ile Gly
249           275          280          285
251 Val Asp Thr Asp Gln Ser Leu Val Tyr Thr Lys Thr Lys Asn Lys Phe
252           290          295          300
254 Phe Thr Ser Ile Leu Lys Asn Leu Gly Tyr Ser Val Phe Ser Val Leu
255   305          310          315          320
257 Ser Asp Leu Tyr Thr Lys Lys Ser Asn Ser Arg Asn Leu Ala Gly Phe
258           325          330          335
260 Glu Phe Gly Lys Lys Ser Ala Thr Val Tyr Leu Gly Ile Lys Asp Arg
261           340          345          350
263 Phe Val Asp Ile Ala Asp Thr Ser Leu Glu Gly Asn Asp Lys Lys Leu
264           355          360          365
266 Ala Thr Glu Ala Ile Ser Glu Ala Lys Lys Glu Phe Glu Glu Lys Thr

```

RAW SEQUENCE LISTING

DATE: 02/09/2001

PATENT APPLICATION: US/09/676,249A

TIME: 12:19:22

Input Set : A:\PC10555A-SEQ-LIST.TXT

Output Set: N:\CRF3\02092001\I676249A.raw

```

267      370      375      380
269 Lys Thr Ile Pro Ala Glu Glu Val Arg Lys Thr Leu Glu Ile Pro Glu
270 385      390      395      400
272 Met Pro Asp Lys Gln Pro Asp Lys Gln Glu Ser Leu Asp Lys Leu
273      405      410      415
275 Ile Thr Asp Ile Asn Asn Leu
276      420
279 <210> SEQ ID NO: 5
280 <211> LENGTH: 602
281 <212> TYPE: DNA
282 <213> ORGANISM: Mycoplasma hyopneumoniae
284 <400> SEQUENCE: 5
285 atgataatat ttttttcagt aaataattgc ttatttttcag ggattttttaa tcatottgtg 60
286 aacgcacac cgtgttgaaa accagaaagt actcaaacat tttgttggt attagcaagt 120
287 gagctatatt ttccttcaag ttcagcagtt gaactatcta ctgaagtaat ctcacctcca 180
288 gtaagagcgc caagttgttg aattgcctct caacttgatt ggttaaatga attatcattt 240
289 accgttccac cagcggttac aattgccata tttagcccaa aatgtttggt tgcacagct 300
290 ttgcggccca taatttcgga ttttcgttca ttaactagtc ctgaaatttt tgagacatca 360
291 gtgatttgct tatattgatt atcggtgat tttctcttct tagttgttct tttatcccaa 420
292 catccggcag agattgtcgc gattgctgaa agcggaaaaa ctaagcctaa gccagaaaat 480
293 ttatttcatt ttatctttt ttatctagtt gtctctctaa ttaattgttt taattacgat 540
294 gactttcaat tattttttta taaattaatt tttattttac attttctatt atattcaaaa 600
295 ac
298 <210> SEQ ID NO: 6
299 <211> LENGTH: 200
300 <212> TYPE: PRT
301 <213> ORGANISM: Mycoplasma hyopneumoniae
303 <400> SEQUENCE: 6
304 Met Ile Ile Phe Phe Ser Val Asn Asn Cys Leu Phe Ser Gly Ile Phe
305 1      5      10      15
307 Asn His Leu Val Asn Ala Ser Pro Cys Trp Lys Pro Glu Ser Thr Gln
308      20      25      30
310 Thr Phe Leu Val Leu Ala Ser Glu Leu Tyr Phe Pro Ser Ser Ser
311      35      40      45
313 Ala Val Glu Leu Ser Thr Glu Val Ile Ser Pro Pro Val Arg Ala Pro
314      50      55      60
316 Ser Cys Trp Ile Ala Ser Gln Leu Asp Trp Leu Asn Glu Leu Ser Phe
317 65      70      75      80
319 Thr Val Pro Pro Ala Val Thr Ile Ala Ile Phe Ser Pro Lys Cys Leu
320      85      90      95
322 Phe Ala Ser Ala Phe Ala Ala Ile Ile Ser Asp Phe Arg Ser Leu Thr
323      100      105      110
325 Ser Pro Glu Ile Phe Glu Thr Ser Val Ile Cys Leu Phe Trp Leu Ser
326      115      120      125
328 Ala Asp Phe Ser Ser Leu Val Val Ser Leu Ser Gln His Pro Ala Glu
329      130      135      140
331 Ile Val Ala Ile Ala Glu Ser Gly Lys Thr Lys Pro Lys Pro Arg Asn
332 145      150      155      160
334 Leu Phe His Phe Ile Phe Phe Phe Ile Val Val Leu Leu Ile Asn Cys

```

FYI

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY

DATE: 02/09/2001

PATENT APPLICATION: US/09/676,249A

TIME: 12:19:23

Input Set : A:\PC10555A-SEQ-LIST.TXT

Output Set: N:\CRF3\02092001\I676249A.raw

L:13 M:270 C: Current Application Number differs, Replaced Application Number
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:355 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:396 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:10
L:402 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10
L:424 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:12
L:430 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:452 M:257 W: Feature value mis-spelled or invalid, <221> Name/Key for SEQ ID#:14
L:458 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14